PROJECT SHEET

Biogas Plant Anaerobic Digestors

2019

ABOUT THIS PROJECT:

Market Segment:
Power & Utilities, Wastewater Collection & Treatment

General Contractor:
DUNAV CONS, Novi Sad

Products Used:
Xypex Admix C-1000 NF, Xypex Concentrate, Xypex Patch'n Plug

Location:
Mramorak, Serbia

Concrete Producer:
STATIK Kovin

Investor:
ALMEX Pancevo

The Mramorak biogas plant in Serbia, operational since December 2019, represents a pivotal advancement in renewable energy technologies, specifically in converting organic waste into biogas.

This project underscores the importance of selecting construction materials that can withstand the harsh conditions of anaerobic digestion—a process where microorganisms decompose organic matter without oxygen, producing biogas but also creating a highly corrosive environment for conventional concrete.

To tackle this, the project team opted for Xypex Crystalline Technology, known for significantly enhancing concrete's resilience to chemical attack, its durability, and its ability to self-heal cracks. This choice was pivotal in ensuring the structural longevity of the biogas plant amidst the demanding conditions of biogas production.

For the construction of the biogas digesters, slabs, and walls, approximately 3,000 kg of Xypex Admix C-1000 NF was added to the concrete.

This waterproofing and increased durability admixture saves time and money, as it is added directly to the concrete mix during batching, eliminating the need for waterproofing membranes or coatings after curing.

It is designed to integrate into the concrete matrix, offering permanent waterproofing and significantly enhancing concrete's resistance to a wide range of aggressive chemicals, vital for maintaining the integrity of the biogas plant's digesters.

Despite meticulous construction efforts, some localized defects at cold joints and cracks are inevitable. To address these issues as well as waterproof the tie-holes, a combination of approximately 1,000 kg of Xypex Concentrate and 600 kg of Xypex Patch n' Plug were used. These products played a key role in repairing concrete defects throughout the project. Xypex Patch'n Plug, a fast-setting hydraulic cement mix, was applied to quickly stop leaks and address defects, ensuring a seamless and robust repair process. Xypex Concentrate was then used to seal around 1,800 tie-holes and repair 100 m of joints.

Xypex Concentrate is known for its versatility in its ability to be used in both positive and negative side applications as well as on wet surfaces. The end result provides a durable solution that renders the concrete waterproof, chemically resistant, and capable of self-healing cracks up to 0.5 mm.

The implementation of Xypex Crystalline Technology in the Mramorak Biogas Plant project has successfully waterproofed and safeguarded the concrete infrastructures against the severe conditions encountered in biogas production.

This application led to reductions in time and costs associated with waterproofing installation and concrete repair and maintenance. It highlights the effectiveness of Xypex's solutions in addressing the specific challenges faced by waste treatment and power utility projects.

To learn more about how Xypex Protects Critical Wastewater Infrastructure, **click here**.